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# memorandum

DATE: September 18, 2000

REPLY TO  
ATTN OF: Emily Hoffnar, FCC, CCB, IAD

SUBJECT: Docket 99-294

TO: Office of the Secretary

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FEDERAL COMMUNICATIONS COMMISSION  
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# UNITED STATES FEDERAL COMMUNICATIONS COMMISSION

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In Re:

PUBLIC NOTICE

FEDERAL-STATE JOINT  
CONFERENCE ON ADVANCED  
SERVICES; GULF STATES AND  
SOUTHEASTERN REGIONAL FIELD  
HEARING IN MIAMI, FLORIDA

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**SEP 18 2000**

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

Pages: 1 through 149

Place: Miami Beach, Florida

Date: June 9, 2000

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## HERITAGE REPORTING CORPORATION

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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

In Re: )  
 )  
PUBLIC NOTICE )  
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FEDERAL-STATE JOINT )  
CONFERENCE ON ADVANCED )  
SERVICES; GULF STATES AND )  
SOUTHEASTERN REGIONAL FIELD )  
HEARING IN MIAMI, FLORIDA )

Starlight Room  
Eighteenth Floor  
Wyndham Miami Beach Resort  
4833 Collins Avenue  
Miami Beach, Florida

The parties met, pursuant to the notice of the  
Commission, at 9:15 a.m.

APPEARANCES:

Panel Members:

JOE GARCIA  
Chairman, Florida Public Service Commission

GLORIA TRISTANI  
Commissioner, Federal Communications Commission

BRETT PERLMAN  
Commissioner, Texas

STEPHEN PALLAN  
Product Manager, AT&T Fixed Wireless

BILL PARADISE  
Director, Business Development & Marketing  
Nortel Fixed Wireless DSL

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Panel Members (Continued):

JONATHAN MAPES  
WorldCom Wireless

IMMA DIXON  
Chair, Louisiana

JOE LACHER  
President, Bell South Florida

JULIA JOHNSON  
Chairperson, Florida Internet Technology  
Task Force

DR. PAT HADLEY  
Florida State University

WILLIAM RAY, P.E.

ANDRE VANYI-ROBIN  
CEO, Visualcom

JO ANNE SANFORD  
Chair, North Carolina Utilities Commission

RICK CARLISLE  
Secretary, North Carolina Department of Commerce

WINSTON PIERCE  
Florida Division of Management Services  
Office of the Governor, Information Services NAP/  
Florida Internet Coast

JEFF KLINE  
CEO, Accris Corporation

LORINE CARD  
Director, Congressional Affairs  
MediaOne Group

PEGGY RUDD  
Executive Director, Texas Library Association

Commentators:

REG MILLER  
All Video Network

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Commentators (Continued):

JOHN MANN  
State of Florida  
Public Service Commission

P R O C E E D I N G S

(9:15 a.m.)

MR. MILLER: We are watching a very unique broadcast today. This is the fifth out of six hearings conducted by the Federal Communications Commission, as well as the Public Service Commission. This is the Telecommunications Advanced Services Meeting being held in Miami Beach, Florida at the Wyndham Hotel. I am here with John Mann from the state of Florida.

And, John, give us an overview of what this is all about.

MR. MANN: Reg, this is an attempt by the FCC to get together with some of the states to figure out what are some of the best practices for the deployment of advanced services in the country. Every year, the FCC reports to Congress about how deployment of advanced services are taking place. And this is an attempt to gather some evidence about that.

MR. MILLER: I understand that last year, the FCC had a report that everything was going just hunky-dory, was wonderfully well. And everything in the internet world and advanced services and broad band is moving at such a fast rate now, it is time for re-evaluation maybe.

MR. MANN: I think it is going to have to be an ongoing evaluation just like the introduction of television

1 and air conditioning and telephones. There was a certain  
2 curve to its deployment throughout the country. And the FCC  
3 is going to want to stay on top of how that is being  
4 deployed and who are the haves and have-nots with the  
5 digital divide.

6 MR. MILLER: We are streaming this broadcast  
7 today. And this perhaps is the crux of a lot of what this  
8 meeting is about. How important is streaming media to  
9 internet, not only for the internet as a whole, but to  
10 making sure that the public gets access to almost everything  
11 that is out there governmentally?

12 MR. MANN: Well, that is a real good point, Reg.  
13 We are co-hosting this conference with three other states.  
14 And most of their staff people and people that are  
15 interested in the states can't come. And the only way that  
16 they are going to see this material is through the web cast.  
17 And as you push the capabilities of broad band through web  
18 cast, it is only going to make it better for everybody.

19 MR. MILLER: Now, there were four other meetings  
20 before this. This is the fifth. And like I said, we have  
21 one further one down the road. Where is that going to be?

22 MR. MANN: That is going to be at the University  
23 of Wyoming, Reg.

24 MR. MILLER: About what time frame?

25 MR. MANN: I think that is in about three weeks.

1           MR. MILLER: And what happens? What is the  
2 governmental protocol of what happens at these meetings? Is  
3 there eventually a report made and then where does it go?

4           MR. MANN: Yes. They are going to collect  
5 information and submit a report to Congress on this  
6 deployment of advanced services. And the FCC has assigned  
7 each of these conferences with a certain subject matter. At  
8 this one, we are going to be talking about fixed wireless,  
9 deployment to rural and urban multi-cultural communities and  
10 public-private partnerships. And in Wyoming, they are going  
11 to be talking about different subject matter and hopefully  
12 getting the big picture of what is going on in the United  
13 States.

14           MR. MILLER: We are working with three other  
15 states as you mentioned. And everybody is up here from a  
16 lot of the big communications corporations in the United  
17 States. And the individual states also have some companies  
18 that are here to advance their services and try to make sure  
19 that they are taken care of. Tell us how the whole program  
20 is going to work.

21           MR. MANN: Well, today's panel -- we have three  
22 different panels. And we are going to have some presenters,  
23 say, from the fixed wireless group. They will be the first  
24 panel. They are going to each give a presentation on what  
25 their company is doing, their best practices as it were.



1           And then there is going to be question and answers  
2   from the Commissioners to try and develop the record. And  
3   they have submitted testimony and we have put it in a book  
4   and we are giving it to the FCC. And that is how it is  
5   going to work.

6           MR. MILLER: This program is scheduled for about  
7   three hours. We were supposed to go up really about ten  
8   minutes ago. But everybody is still arriving and that is  
9   normal for these kinds of things. We expect the broadcast  
10   to officially start in just a few minutes. The FCC  
11   Commissioner, Gloria Tristani, is here. What do you expect  
12   from her?

13          MR. MANN: I think she is going to set the tone  
14   and give some introductory remarks. And I think she is here  
15   to pretty much gather evidence to get out in the field and  
16   to try and see what is going on in America. And all the  
17   Commissioners at the FCC are participating in these forums.  
18   So the late start I think has a lot to do with what a  
19   wonderful place we are conducting this. And I think some  
20   people are having some fun.

21          MR. MILLER: And this will be a visual  
22   presentation, as well, will it not?

23          MR. MANN: Yes. We are going to have some  
24   presentations up on the screen. Being advanced services, we  
25   asked the speakers to give us some bells and whistles

1 showing us what they can do with advanced services.

2 MR. MILLER: How about questions? Is there going  
3 to be any sort of opportunity for the internet viewers to  
4 ask questions or not?

5 MR. MANN: No. We are -- we have submitted an  
6 inquiry to the industry to put some questions together. And  
7 they got approved with the FCC. And so they are going to be  
8 asking the questions. But, no, there isn't going to be two-  
9 way broadcast at this time. But I am sure the next time we  
10 do this, that is going to be easy to do.

11 MR. MILLER: Tell us about the importance of  
12 streaming media to the entire spectrum of what you are  
13 doing, your government meetings and everything else.

14 MR. MANN: Well, you can see the cost that state  
15 agencies and companies incur to travel all over the country  
16 to events like this. If people can sit at their office and  
17 get the stream to go to their computer, the cost saving  
18 could be enormous. And just as we have all fallen in love  
19 with the idea of these conference calls via the telephone,  
20 tomorrow it will seem like we will all going to be getting  
21 these streamed shows at LPC and being able to interact. And  
22 it will bring us all closer together.

23 MR. MILLER: As the technology really evolves,  
24 this is one of those things where more and more people are  
25 becoming aware. Let's talk about the move to create

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1 awareness with the public. What is being done in the PR  
2 marketing end, not only from the public sector, but from the  
3 private sector?

4 MR. MANN: Well, I am mainly familiar with the  
5 government sector. And I know Department of Management  
6 Services has done quite a bit of work with the Cyber Town  
7 meetings and broadcasting the IT Task Force meetings. And  
8 companies like All Video Network has done a lot as far as  
9 getting it out in the public, that, hey, this is available.  
10 And it seems like you guys have figured out how to pump it  
11 out there. And now if we can just convince the public, you  
12 know, to get the plug-ins, to get the software they need on  
13 their end, that we are going to have broadcast and  
14 receiving.

15 MR. MILLER: Beautiful. Now, John, I have been  
16 told that we are about to start this in just a couple of  
17 minutes. They are not exactly ready just yet. But I am  
18 going to invite everybody who is out there watching right  
19 now to just be patient, stay tuned. And when we come back  
20 up, we will give you the third coverage, not gavel-to-gavel,  
21 but the opening remarks to the closing remarks right here,  
22 where you are right now on the web site. I am Reg Miller  
23 from All Video Network. Please keep it right here.

24 MR. GARCIA: Good morning. All right. Now it is  
25 working. All right. Let me say good morning. Buenos dias.

1 Welcome to this hearing of the FCC. It is a pleasure to  
2 have you all here. We are simulcasting on various websites  
3 across the country. I hope we have favorably impressed the  
4 Commissioner with our setup here and all the panelists. We  
5 spent a lot of time.

6 And I want to thank our staff. They did an  
7 incredible job. Even I was impressed and I always expect  
8 too much. This is a wonderful job and you are going to be  
9 able to see the technology at work to some degree here today  
10 and what these companies are doing and providing for us.

11 With that, I want to introduce Commissioner Gloria  
12 Tristani. I had a long introduction. But what happens with  
13 people is that when they are in Miami, they adopt the Latin  
14 way. And as you noticed, we are running about 30 minutes  
15 late which is -- we are right on time.

16 We have got a very tight schedule today. So I am  
17 going to ask the panelists to stick to the times they were  
18 allotted so that we can get everything in. It is important  
19 for the FCC to have this record before them as they move  
20 forward into more important telecommunications decisions  
21 that they are going to make in the years to come.

22 Gloria Tristani hails from New Mexico. She is a  
23 life-long Democrat. But more importantly than that, she is  
24 a good friend. She is a good friend to states. She has  
25 kept states' rights at the forefront of issues involving the

1 FCC.

2 She is someone who has advocated the E-rate and  
3 history will note some time from now that that was of great  
4 benefit to our entire country. And in the long run, we are  
5 going to be great winners because of it. Commissioner  
6 Tristani, with that I will introduce you and you can get  
7 started.

8 (Applause.)

9 COMMISSIONER TRISTANI: Thank you, Joe, for that  
10 very kind introduction. And I am delighted to be here. I  
11 am delighted to be here in Florida. I am delighted to be  
12 here with the fellow state commissioners, Commissioner  
13 Perlman, Commissioner Sanford, Commissioner Dixon and other  
14 commissioners in the audience.

15 One of the things I really enjoy doing at the FCC  
16 is keeping up a good working relationship with the states.  
17 I not only enjoy it, I think it is absolutely necessary for  
18 us to do a good job. So I want to thank you for helping us  
19 at the FCC with your wonderful perspectives and also with  
20 the needed perspectives from government officials that are  
21 where the things are happening who encounter the problems  
22 first-hand.

23 This is the fifth in a series of field hearings  
24 being held by the Joint Conference on Advanced Services.  
25 Our joint mission as federal-state partners is to work

1     toward advancing the deployment of advanced services to  
2     everyone. The Joint Conference is holding these field  
3     hearings in order to gather information on the state of  
4     broad band deployment and to understand what has been  
5     successful in bringing broad band to different communities.

6             As a result of these hearings and other efforts at  
7     the Commission, the FCC will be issuing a report later this  
8     summer on the status of advanced services deployment and  
9     considering recommendations on how we can promote better  
10    deployment.

11            In talking about these issues across the country,  
12    two things have become very clear to me. First, access to  
13    high speed broad band telecommunication services is critical  
14    to economic prosperity of families and communities  
15    everywhere and to their ability to participate in the  
16    information economy.

17            Second, there is no single solution for bringing  
18    broad band to a community. Dozens of very different  
19    solutions have brought broad band to communities across the  
20    country. While the Telecom Act is about bringing  
21    competition to all communications markets, it is also about  
22    ensuring that no one is left out of those markets all  
23    together -- left out.

24            The Act speaks clearly about the need to ensure  
25    that advanced services are universally available. I intend

1 to ensure that that goal of the Act is met. This process  
2 that we embark on today is about identifying the barriers to  
3 deployment so we can determine which tools to employ to  
4 eliminate them.

5 Again, I want to thank our partners at the states  
6 for helping us. I want to thank Florida in particular for  
7 putting this together and Florida's staff. I know that we  
8 are going to have a wonderful conference today. I also want  
9 to thank Emily Hoffnar of FCC's staff who I believe is here  
10 today who has been working on these issues from our end.  
11 And I also want to mention that Adam Krensky of my staff is  
12 here today. If you have any issue you want to run by me,  
13 this is a good time.

14 I am anxious to hear from the panelists. I am  
15 here to listen. I am not here to give my views, but to  
16 listen to what has worked and how we can use what has worked  
17 here in other communities across America. Thank you.

18 (Applause.)

19 COMMISSIONER PERLMAN: Thanks. I am going to kick  
20 off the first panel here which is on fixed wireless. Many  
21 have predicted that fixed wireless will provide a third wire  
22 for the deployment of broad band services, particularly in  
23 rural and hard to reach areas.

24 Analysts have predicted that by 2004, between 40  
25 and 50 percent of homes in the U.S. will be able to

1 subscribe to fixed wireless and that approximately four  
2 million customers will sign up. Well, these predictions  
3 clearly show promise. There are many questions that we are  
4 going to address today.

5 We would like to know what markets will these  
6 technologies be deployed in --

7 COMMISSIONER TRISTANI: Could I interrupt you a  
8 moment? I know we are running out of time. But I just  
9 noticed that I was supposed to introduce you, Commissioner  
10 Perlman. And I apologize because --

11 COMMISSIONER PERLMAN: No, that's okay.

12 COMMISSIONER TRISTANI: So my apologies.

13 COMMISSIONER PERLMAN: Okay. In any event, we  
14 want to know the markets which these technologies are being  
15 deployed in. Will the technologies be cost effective  
16 particularly for rural areas. And what the regulatory and  
17 other barriers are to overcome. To discuss this issue with  
18 us, we have three panelists. Stephen Pallen is a Product  
19 Manager with AT&T Fixed Wireless. Bill Paradise is Director  
20 for Business Development and Marketing for Nortel. And  
21 Jonathan Mapes is Chief Technology Officer with WorldCom  
22 Wireless Solutions.

23 Stephen, let me turn it over to you and let's have  
24 a few comments on AT&T's progress in fixed wireless.

25 MR. PALLLEN: Great. Thank you very much. First I



1 would like to tell you why I am so excited to be here today  
2 to talk about AT&T fixed wireless service. I have been  
3 involved with this project now for over four years, have  
4 seen it through the early research and development, through  
5 the first technology trials and our first commercially  
6 deployed service in Dallas-Fort Worth.

7 What is fixed wireless? AT&T Digital Broad Band,  
8 the name that we market this service, is a high quality, all  
9 distance voice and high speed internet access at competitive  
10 rates. Service is provided to your home by transmitting  
11 voice and high speed data signals between nearby bay  
12 stations and a small antenna mounted on your home.

13 Our service connects to your existing house wiring  
14 using your existing telephone wire equipment. The same pair  
15 of wires is used to simultaneously transmit voice and high  
16 speed data within your home. There is no need to install or  
17 modify your house wiring. You use the existing house  
18 wiring.

19 The small eave-mounted antenna is not affected by  
20 weather conditions. And when we deploy this, we use  
21 existing AWS mobility towers where possible to speed  
22 deployment and reduce costs.

23 So what is unique about AT&T fixed wireless? It  
24 provides one digital connection that allows you to surf the  
25 internet and still receive calls. No more busy signals. No

1     disconnecting from the internet to receive telephone calls.

2             Home network and able technology allows you to  
3     plus up to five PCs with network adapters into your existing  
4     telephone jacks. Additional network adapters can be  
5     purchased at most computer retail stores.

6             The internet connects up to 12 times faster than a  
7     traditional dial-up modem. And you never have to listen to  
8     that obnoxious modem dial-up tone anymore. With the local  
9     area network, you can have five computers, be surfing the  
10    internet on all five computers and on five different sites  
11    and be on the telephone all at the same time.

12            Where are we with this service? We have deployed  
13    our first commercial service in Dallas-Fort Worth this year.  
14    Although we don't have complete coverage in the DFW  
15    metroplex, our service covers approximately 380,000 homes.

16            In Texas, you will get the service including  
17    unlimited local calling, three calling features, seven cents  
18    per minute in-state and state-to-state long distance,  
19    unlimited high speed data and AT&T WorldNet for under \$65.00  
20    a month. We also have a promotion where we will install the  
21    service, voice service and high speed internet to one PC at  
22    no extra cost.

23            So where are we going with the service? We will  
24    deploy at least three other markets around the country this  
25    year, covering approximately 1.5 million homes and a full-

1 scale roll-out in 2001. We will also be deploying  
2 technology improvements this year like increasing our down-  
3 link data rate from up to 512 kilobits per second to over --  
4 to up to one megabit per second.

5 But it is not all clear sailing as we -- as one  
6 would expect with an infant technology like this. We face a  
7 number of challenges. Municipal zoning provides a challenge  
8 when deploying new bay stations. We are finding  
9 interworking within the industry, especially for issues like  
10 porting numbers, telephone numbers. Ramping to meet market  
11 demands and constant process improvements to achieve  
12 corporate investing possible.

13 In summary, I hope that I have shown you a new,  
14 upcoming alternative to wire-line local telephone service  
15 and high speed internet access. We are working on our first  
16 commercial deployment in the residential fixed wireless  
17 market. And but we still have a huge infrastructure to  
18 build out to provide this service nationally. Thank you.

19 COMMISSIONER PERLMAN: Bill, let's hear from  
20 Nortel about some of the advances on the equipment side.  
21 What are you guys doing?

22 MR. PARADISE: Okay. Well, thank you very much.  
23 It is a pleasure to be here today. I am with Nortel  
24 Networks who are network solution providers to service  
25 providers such as WorldCom, Sprint, AT&T. Next slide,

1 please.

2           There clearly is a pent-up demand for wireless  
3 access within the U.S. today and around the world. People  
4 cannot get access higher than 56K dial-up in many regions of  
5 the country. And this demand for access is what is fueling  
6 both AT&T and Nortel and other solutions providers to offer  
7 solutions. And it has been enabled by the FCC in  
8 authorizing the MMDS two-way band for operation.

9           Wireless access offers rapid service establishment  
10 and competitive service. If you compare the broad band  
11 technologies available today, 56K dial-up and ISDN are  
12 commodities not considered broad band. Really the key  
13 players are 3G technology which is a few years out from  
14 widespread to deployment.

15           Direct-to-home satellite provides high band width  
16 downstream, about 400 kilobit per second, but is phone line  
17 upstream today. Cable modem and wired DSL are the  
18 predominant technologies. They are not available in a  
19 ubiquitous manner today. But they are expanding. Wireless,  
20 particularly using MMDS band in the United States and 3.5  
21 gigahertz in international markets, can both complement and  
22 compete with the cable modem and the wire DSL technologies.  
23 Next slide.

24           Clearly, there are many dimensions of deploying  
25 wireless networks. And we believe not one solution can fit

1 all target markets. A dense metropolitan area requires a  
2 certain architecture, but similar technology to a rural  
3 deployment where there is different ranges that need to be  
4 considered in terms of coverage, less dense population. The  
5 key is to develop a system that can be tailored for each of  
6 those regions.

7 Nortel as many other -- as well as many other  
8 companies have broad solutions in the wireless domain that  
9 cover a wide range of data rates, a wide range of  
10 frequencies in licensed bands and unlicensed bands. Typical  
11 deployment scenarios can be architected for super-cell  
12 configurations covering ranges from a 20 to 35-mile radius,  
13 as well as what is called a multi-cell arrangement where  
14 high overlap is used, smaller cells about five-mile radius  
15 allow frequency reuse and more dense delivery of band width  
16 per unit area.

17 Typical system parameters for MMDS wireless system  
18 are average data rates to the subscriber of 128 kilobits to  
19 two megabits with burst rates higher than that, delivering  
20 bundled data and voice services. The connections at a  
21 subscriber premises would typically be an RJ-45 for plugging  
22 into a NIC card on your computer. POTS is implemented by an  
23 RJ-11.

24 And one of the key advantages of wireless access  
25 is you can roll out a system and cover an under-served

1 region or area. You do not have to cover a whole  
2 metropolitan area before you sell the first phone to make a  
3 comparison to PCS or telephony.

4 I won't dwell on this. But typically there is a  
5 bay station with some equipment mounted indoors. Subscriber  
6 equipment is typically a smaller antenna on the order of 12-  
7 inch diameter or square with a modem like a small set-top  
8 box inside the residence.

9 It is important to consider when you are rolling  
10 out services in various regions that the wireless access is  
11 very important. That does need to be tied back to network  
12 access points which could be metropolitan rings. That  
13 backbone can be implemented by fiber, by co-ax runs and even  
14 by wireless point-to-point. And there is many dimensions to  
15 the solution of deploying wireless services. That is it.

16 COMMISSIONER PERLMAN: Great. Jonathan, where  
17 does WorldCom stand on wireless?

18 MR. MAPES: Thank you. I appreciate the  
19 opportunity to come discuss this with you today. And I  
20 think one of the opening comments that the Commissioner made  
21 is really wrought on with regard to the use of the  
22 technology.

23 When we talk about MMDS from WorldCom's  
24 perspective, we are really technology agnostic. WorldCom  
25 believes that the MMDS technology does give a see-ability of

1 delivering services. So when we talk about MMDS, it is a  
2 transport alternative. I guess the term we use internally,  
3 it is the tail, it is not the dog. So when you look at  
4 that, I think the comments you made opening was very  
5 accurate on that.

6 When we look at MMDS, it is multi-channel, multi-  
7 point services. It is in the 2.5 to 2.7 gig-range. In  
8 rural America, it could literally be the first pipe, the  
9 pipe to bring services whether it is voice data and other  
10 activities to those businesses and to the residential  
11 community. In other markets, it could be a competitive  
12 second or third opportunity, competing with DSL and with  
13 cable.

14 Historically, MMDS was used for what is called  
15 instructional television fixed service to provide  
16 educational missions for colleges, universities, churches.  
17 The FCC adopted rural changes in '98 to allow the use and  
18 the start of the provisioning for two-way, and then we are  
19 looking forward to the July window to be able to fire  
20 licenses for the two-way.

21 I'll get some information here from the analyst  
22 side. But just for purposes of time, what I would like to  
23 do is talk just briefly about how MMDS actually works.  
24 Inside the home, you've got a -- what looks like a wireless  
25 cable modem connected to your computer.

1           And then from there, it connects to a transceiver  
2   or an antenna on top of the small business or the residence.  
3   And it communicates back to the bay station, as the other  
4   panelist discussed earlier, communicating back to a central  
5   location that would then connect to the internet or to the  
6   WorldCom backbone depending on the service the customer is  
7   wanting.

8           We really believe that the 2.5 is well-suited  
9   spectrum for this type of services. The 35-mile area that  
10  was discussed earlier is critical to deployment. But when  
11  you look at what makes MMDS really special, the ability to  
12  provide coverage and the ability to do it at a cost-  
13  effective offering. And internally, we are talking about  
14  \$2,000.00 per square mile.

15           When you look at DSL and cable services, when you  
16  look at other services that are available, it is just not  
17  able to provide and meet that mark. So that is why we think  
18  it is something that is very rapid to deploy and also  
19  something that is very viable from a cost structure  
20  perspective from the consumer.

21           I'll talk a little bit about DSL and some of the  
22  issues there with the upgrades of the central offices. And  
23  predominantly, the upgrades take first in the more  
24  demographically attractive areas like the cities. So in the  
25  rural America, in the outlying areas, it is more



1 challenging.

2           Also, when you look at the limitations in some of  
3 the unloading of the coils in the local loops that would  
4 have to be done to make DSL functional, you have a  
5 limitation there. On cable, it doesn't necessarily go by  
6 the business areas where those customers have small  
7 businesses that have needs for broad band pipes. And also,  
8 you have the upgrades and the electronics that would have to  
9 be done on the cable plant there to make that a viable  
10 solution.

11           We talk about the band width that is deliverable.  
12 Earlier, we talked about the 128 kilobit, up to two meg.,  
13 with the ability to do a burst up to ten megabits. So it  
14 has the ability of providing a variety of services and  
15 support a variety of applications that can operate in that  
16 band width.

17           Today in markets like Baton Rouge, Louisiana,  
18 Jackson, Mississippi, Memphis, Tennessee, we have services  
19 operational today. In this example, we are calling it from  
20 one of the legacy companies that we acquired, it is called  
21 Warp One. It is a 310 symmetrical services provided both to  
22 businesses and to residential users. And it was priced at  
23 \$39.95 a month. We really thing that the sweet spot for  
24 this services is somewhere between 128 kilobit and 1.5  
25 megabits in sustained band width with the ability to burst

1 on large files and large transfers upwards of ten meg.

2 We also are looking at other technologies to  
3 augment this. It is just one leg of the solution. In some  
4 areas like multi-dwelling units, apartment complexes,  
5 condominiums, in some business environments, buildings that  
6 need in-building wireless transport.

7 We are looking at other technologies to augment  
8 the MMDS to be able to provide those services. Some of  
9 those technologies are in the 802.11, the unlicensed band,  
10 to be able to augment services and provide wireless  
11 portability and mobility inside those structures to our  
12 customers to make the service easier for them. It has also  
13 given us the ability of looking at addressing some of the  
14 consumer density issues in some of the residences to provide  
15 more viable service there.

16 We have invested in 1999 over a billion dollars in  
17 the purchase of four different MMDS companies who have  
18 footprints throughout different aspects of the U.S. Sprint  
19 also made similar purchases of similar companies with  
20 different geographic footprints.

21 We have very few channels obviously that overlap.  
22 But we are both working toward the same means as far as  
23 providing those pipes. Our coverage would be basically  
24 complementary and the combined would give us about 125 of  
25 the largest markets in the U.S.

1           From looking at the -- at what we are doing in  
2   Louisiana and that site specifically, we are finding a lot  
3   of ability to provide services to consumers who have not had  
4   that opportunity before. We are looking at the ability of  
5   delivering those services in a very timely fashion, a  
6   provisioning cycle of three days versus a provisioning cycle  
7   of 60 to 90 days for other broad band technology. So there  
8   is a time to market and there is a time from the aspect of  
9   delivering the services to the customer. Thank you.

10           MR. PERLMAN: Great. We have -- but we are  
11   running a little bit behind. So I am going to try to catch  
12   us up a little bit. We have about ten minutes for  
13   questions. And I will start off with the first question.  
14   And I will address this really to all the panelists.

15           I had -- just throwing out some market numbers  
16   there that the coverage for this technology could be upwards  
17   of 40 to 50 percent of the potential subscribers and that  
18   there might be somewhere around four million subscribers for  
19   all sorts of fixed wireless by the year 2004 time frame.  
20   Does that seem reasonable? And will that deployment be in  
21   rural areas, as well as urban areas?

22           MR. MAPES: I will take the first shot. From the  
23   deployment in the design of networks that we are designing,  
24   we are designing to like a 75 or 85 percent depending on the  
25   geographic region of the country. In a very mountainous

1 region, we would not be able to cover at the same level  
2 things like foliage. And it is still today a line-of-site  
3 technology.

4 But in our designs, we are designing models to 75  
5 to 85 percent of the population. I think the viability of  
6 covering is very real today. As you will see in our first  
7 round of filings, our filings are in second and third-tier  
8 markets because we really feel that the ability to deliver  
9 those services as discussed earlier in a super-cell -- and  
10 when we are talking a super-cell, we are talking a very tall  
11 structure that has the ability of covering a very large  
12 geographic footprint -- is really most suited for those type  
13 of environments. So that is from our perspective the  
14 direction that we are going.

15 COMMISSIONER PERLMAN: How about from the AT&T  
16 perspective?

17 MR. PALLER: Well, considering that we are  
18 deploying a few markets this year to cover 150 -- or 1.5  
19 million households and our full-scale roll-out will be next  
20 year, given that with other technologies like MMDS, I think  
21 it is definitely reasonable to expect that penetration.

22 MR. PARADISE: Yes, I would add that four million  
23 from a nationwide standpoint may be a little bit low over  
24 the next four years. Much of it depends on how fast cable  
25 modems and wired DSL roll out. But I believe the pent-up

1 demand is there. And our forecasts show that there is 100  
2 million households within the U.S. So four million is  
3 easily achievable --

4 COMMISSIONER PERLMAN: And four million was just  
5 the fixed wireless portion.

6 MR. PARADISE: Right, right. I think that can be  
7 easily achieved and possibly acceded.

8 COMMISSIONER TRISTANI: Could I follow up on that  
9 because I'm not sure whether I heard it? I don't know if  
10 you can elaborate on kinds of markets, urban versus rural.  
11 And you did say second and third tier. But maybe you could  
12 tell us a little bit more about where you plan to roll out,  
13 all of you, and --

14 MR. MAPES: In looking at the markets, our initial  
15 deployment will be in the second and third tier markets, the  
16 smaller markets. There is definitely the ability to go in  
17 there and to provide a viable service today. There is  
18 definitely a need in the markets that we have operational  
19 today in Jackson, Baton Rouge and in Memphis. There is a  
20 pent-up demand there for the services.

21 There is a lack of, you know, broad band access  
22 technologies available. In some of these smaller  
23 communities, you are not going to see cable, you know, in  
24 those environments. Upgraded central offices for DSL is not  
25 available and there today.

1           So what we do have larger markets also are  
2   predominant focuses in the first filings. As we go forward  
3   to launch, we will be on those size markets.

4           COMMISSIONER TRISTANI: Could I have a follow-up  
5   before the others address my question? I think I saw \$39.95  
6   per month charge. But does that include the equipment that  
7   the subscriber has to buy? Isn't that a problem right now  
8   for --

9           MR. MAPES: Yes, it is a challenge for us right  
10   now, Commissioner. We are working and trying to lower the  
11   cost of the CPE. And the customer-provided equipment is a  
12   wireless modem. It also consists of a transceiver and an  
13   antenna. So we are looking at that as a combined unit for  
14   the consumer.

15           And we are working vehemently with our vendor  
16   partners. They have heard this speech many times. That is  
17   the real key for us, is to come to a single technology, to  
18   come to a technology built on standards, to allow multiple  
19   manufacturers to come into the sector and to build an  
20   aggressive, cost-effective CPE solution for our customers.

21           COMMISSIONER TRISTANI: If either of you could  
22   address my first question.

23           MR. PALLLEN: Would you repeat the question,  
24   please?

25           COMMISSIONER TRISTANI: Well, I wanted to have

1 more of a sense of where you are actually deploying the  
2 urban versus rural, what kind of markets.

3 MR. PALLAN: Thank you. Currently, our technology  
4 is designed to implement in a suburban environment.  
5 Suburban environment doesn't have the challenges of an urban  
6 environment with tall buildings and that type of  
7 infrastructure. The rural environment provides an  
8 additional challenge. It is just a matter of scale and  
9 volume.

10 We are -- this is a new technology. It has been  
11 developed from ground up. And we are running a technology  
12 curve similar to any other new technology. With time and  
13 with volume, the price of the equipment will come down. Our  
14 technology will be enhanced to provide larger coverage  
15 areas. Therefore, covering the less dense rural areas.  
16 That is not in the immediate -- it will be a little while  
17 out.

18 COMMISSIONER TRISTANI: Bill?

19 MR. PARADISE: We are integrating our system in  
20 our lab now and performing the validation tests. And we  
21 haven't deployed with any service providers to date. But we  
22 expect to by the end of the year. We are working with many  
23 service providers, both in the U.S. and internationally.  
24 From a price reduction standpoint,

25 I agree with Mr. Mapes that the standardization is

1 absolutely key to getting multiple suppliers for the  
2 subscriber equipment. That induces competition inherently,  
3 drives the price down. And I believe it can follow then a  
4 distribution model similar to the digital satellite systems  
5 where customers can purchase the units, either have them  
6 installed or install them themselves and sign up for the  
7 service.

8 Now, one key differentiation here, this is a two-  
9 way transmitting system. And I believe the current rules of  
10 the FCC are that a professional installer must install them.  
11 Since they radiate, there are interference issues. That is  
12 one area where maybe a larger -- a program to, say, qualify  
13 the DSS installation companies distributed throughout the  
14 nation could allow a more rapid roll-out, either get them  
15 trained or maybe if we could put some features in the system  
16 to allow customer installations.

17 COMMISSIONER PERLMAN: The gal down the road here,  
18 Irma, you had a question.

19 CHAIRWOMAN DIXON: Yes, I have a quick question.  
20 I wanted to know if there are any characteristics like  
21 geography, climate -- we have hurricanes; we have tornadoes  
22 in this particular region -- that would make fixed wireless  
23 better or worse to deploy, to actually use in providing  
24 broad band access. And are there any regulatory barriers,  
25 particularly in this region, that you may foresee to deter